

# UniProtKB/Swiss-Prot entry P30440

## Entry information

Entry name	FEL1B_FELCA
Primary accession number	P30440
Secondary accession numbers	None
Integrated into Swiss-Prot on	April 1, 1993
Sequence was last modified on	April 1, 1993 (Sequence version 1)
Annotations were last modified on	April 3, 2007 (Entry version 55)

## Name and origin of the protein

Protein name	Major allergen I polypeptide chain 2 [Precursor]
Synonyms	Allergen Fel d 1-B Fel d I-B Allergen Cat-1 AG4 Fdl
Gene name	Name: CH2
From	Felis silvestris catus (Cat) [TaxID: 9685]
Taxonomy	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Laurasiatheria; Carnivora; Feliformia; Felidae; Felinae; Felis.

## References

- [1] NUCLEOTIDE SEQUENCE [MRNA], AND PROTEIN SEQUENCE OF 18-100.  
PubMed=1946388  
Morgenstern J.P., Griffith I.J., Brauer A.W., Rogers B.L., Bond J.F., Chapman M.D., Kuo M.-C.;  
"Amino acid sequence of Fel dI, the major allergen of the domestic cat: protein sequence analysis and cDNA cloning.";  
Proc. Natl. Acad. Sci. U.S.A. 88:9690-9694(1991).
- [2] NUCLEOTIDE SEQUENCE, ALTERNATIVE SPLICING, AND VARIANTS.  
TISSUE=Liver;  
DOI=10.1016/0378-1119(92)90405-E; PubMed=1572548  
Griffith I.J., Craig S., Pollock J., Yu X.-B., Morgenstern J.P., Rogers B.L.;  
"Expression and genomic structure of the genes encoding FdI, the major allergen from the domestic cat.";  
Gene 113:263-268(1992).
- [3] PROTEIN SEQUENCE OF 18-37, AND CHARACTERIZATION.  
DOI=10.1016/0161-5890(91)90141-6; PubMed=1712068  
Duffort O.A., Carreira J., Nitti G., Polo F., Lombardero M.;  
"Studies on the biochemical structure of the major cat allergen Felis domesticus I.";

Mol. Immunol. 28:301-309(1991).

[4] CHARACTERIZATION.

DOI=10.1016/0091-6749(84)90278-1; PubMed=6747135

Leitermann K., Ohman J.L. Jr.;

"Cat allergen 1: biochemical, antigenic, and allergenic properties.";

J. Allergy Clin. Immunol. 74:147-153(1984).

[5] X-RAY CRYSTALLOGRAPHY (1.85 ANGSTROMS) OF 18-109.

DOI=10.1074/jbc.M304740200; PubMed=12851385

Kaiser L., Gronlund H., Sandalova T., Ljunggren H.G., van Hage-Hamsten M., Achour A., Schneider G.;

"The crystal structure of the major cat allergen Fel d 1, a member of the secretoglobin family.";

J. Biol. Chem. 278:37730-37735(2003).

## Comments

- **SUBUNIT:** Heterotetramer composed of two non-covalently linked disulfide-linked heterodimer of chains 1 and 2.
- **SUBCELLULAR LOCATION:** Secreted protein.
- **ALTERNATIVE PRODUCTS:** 3 named isoforms [FASTA] produced by alternative splicing. Experimental confirmation may be lacking for some isoforms.

**Name 1**

Synonyms CH2L

Isoform ID P30440-1

This is the isoform sequence displayed in this entry.

**Name 2**

Synonyms CH2S

Isoform ID P30440-2

Features which should be applied to build the isoform sequence: VSP\_004249.

**Name 3**

Synonyms CH2ST, Truncated

Isoform ID P30440-3

Features which should be applied to build the isoform sequence: VSP\_004248.

- **TISSUE SPECIFICITY:** The long form is preferentially expressed in the salivary gland, while the short form is preferentially expressed in the skin.
- **ALLERGEN:** Causes an allergic reaction in human. Binds to IgE. Major allergen produced by the domestic cat. Implicated as an asthma-inducing agent in human. This protein is sticky and easily adheres to walls, carpet, clothing, furniture and bedding.

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## Cross-references

Sequence databases	
EMBL	M77341; AAC41616.1; -, mRNA. X62478; CAA44345.1; -, Genomic_DNA.
PIR	B53283; B53283. C56413; C56413. JC1127; JC1127.
3D structure databases	
PDB	1PUO; X-ray; A/B=-. 1ZKR; X-ray; A/B=1-93.
Other	
LinkHub	P30440; -.
Implicit links to	ProDom; HOVERGEN; BLOCKS; ProtoNet; ModBase; UniRef.

## Keywords

**3D-structure; Allergen; Alternative splicing; Direct protein sequencing; Glycoprotein; Polymorphism; Signal.**

## Features

Key	From	To	Length	Description	FTId
SIGNAL	1	17	17		
CHAIN	18	109	92	Major allergen I polypeptide chain 2.	PRO_000002124
CARBOHYD	50	50		N-linked (GlcNAc...).	
DISULFID	24	24		Interchain (with C-92 in chain 1).	
DISULFID	65	65		Interchain (with C-66 in chain 1).	
DISULFID	90	90		Interchain (with C-25 in chain 1).	
VAR_SEQ	82	109		TTISSSKDCMGEAVQNTVEDLKLNTLGR -> PSTNIAWVKQFRTP (in isoform 3).	VSP_004248
VAR_SEQ	82	89		TTISSSKD -> IAINLEY (in isoform 2).	VSP_004249
VARIANT	72	72	1	I -> L (in CH2LV).	
VARIANT	72	72	1	I -> V (in CH2SV).	
VARIANT	74	75	2	RV -> KF (in CH2SV).	
VARIANT	91	91	1	M -> T (in CH2LV).	
VARIANT	96	96	1	Q -> E (in CH2SV).	
VARIANT	105	105	1	N -> K (in CH2SV).	
CONFLICT	24	24		C -> F (in Ref. 3).	
CONFLICT	32	32		F -> T (in Ref. 3).	
HELIX	1	12	12		
HELIX	15	18	4		
STRAND	19	23	5		
HELIX	25	35	11		
HELIX	39	48	10		

HELIX	53	68	16
HELIX	71	73	3
STRAND	74	76	3
HELIX	77	85	9
TURN	88	90	3

### Sequence information

Length: **109 AA** [This is the length of the unprocessed precursor]

Molecular weight: **11854 Da** [This is the MW of the unprocessed precursor]

CRC64: **857FB9CD76036CB9** [This is a checksum on the sequence]

<u>10</u>	<u>20</u>	<u>30</u>	<u>40</u>	<u>50</u>	<u>60</u>
MRGALLVLAL	LVTQALGVKM	AETCPIFYDV	FFAVANGNEL	LLDLSLTKVN	ATEPERTAMK
<u>70</u>	<u>80</u>	<u>90</u>	<u>100</u>		
KIQDCYVENG	LISRVLDGLV	MTTISSSKDC	MGEAVQNTVE	DLKLNTLGR	